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EXECUTIVE SUMMARY

Indian Lake Borough authorized the development of a Sewage Facilities Plan in accordance with the Pennsylvania Sewage Facilities Act (Act 537). The purpose of this plan is to evaluate the existing and future sewage needs of Indian Lake Borough and to evaluate sewage disposal alternatives that are compatible with the existing and future needs of the Borough.

Indian Lake Borough is a municipality of approximately 450 people (according to the 2000 U.S. Census) surrounding a 650-acre man-made lake located in eastern Somerset County, Pennsylvania. Indian Lake Borough was formed as a residential and second home community. The dominant feature of the Borough is Indian Lake, which is primarily used for recreation during the warm weather months of the year. Due to the outdoor recreational amenities located in the Borough, the population of Borough is significantly higher during the warm weather months of the year than during the cold weather months.

The Borough currently has a small flow sewage treatment plant that serves the Northwinds Lodge Complex located in the Borough. Sewage disposal for the remainder of the Borough is provided primarily by individual on-lot disposal systems. Although sewage disposal is provided primarily by individual on-lot disposal systems, soil conditions and topography in Indian Lake Borough is generally not favorable for these systems. Some malfunctioning on-lot disposal systems have been identified, and there is a concern that other on-lot disposal systems could also be malfunctioning. In addition, approval to install conventional on-lot disposal systems on many undeveloped lots has been difficult to obtain due to the type of soil conditions and topography.

The technically feasible sewage disposal alternatives that were evaluated in this study are identified as follows:

Alternative 1 – Regional Gravity Sewer System with a single treatment plant located on West Shore Trail and discharge to Rhodes Creek.

Alternative 2 – Regional Pressure Sewer System with a single treatment plant located on West Shore Trail and discharge to Rhodes Creek.

Alternative 3 – Regional Pressure Sewer System with a single treatment plant located on Peninsula Drive near Point Circle and discharge to Indian Lake.

Alternative 4 – Initial sewer service will be provided to the peninsula area through a privately constructed and operated pressure sewer system and sewage treatment plant. Future expansion for other areas of the Borough will be handled by expanding the Lakewood Sewage Treatment Plant.

Alternative 5 – Regional Pressure Sewer System with one pump station which will discharge to the Stonycreek Township gravity sewer system with treatment occurring at the Shanksville proposed sewage treatment facility.

Alternative Sewage Management Program – Establishment and implementation of a Sewage Management Program to oversee the operation and maintenance of existing and future individual sewage disposal systems throughout Indian Lake Borough.

After consideration by the Borough Council, Alternative 5 was originally selected as the alternative that would best meet the wastewater needs of Indian Lake Borough. This alternative, however, required participation from other municipalities.

Alternative 5 is a grinder pump/pressure sewer system that would provide service to the existing residences and vacant lots. The service area of townhouses and lodge would remain as a gravity system with discharge to a proposed pump station in the vicinity of the existing Lakewood Sewage Treatment Plant, which will be abandoned. The new proposed Lakewood Pump Station would pump sewage collected on the south side of the lake along Causeway Drive to the proposed Stonycreek Township gravity interceptor. The pressure sewer system serving the north side of the lake would pump sewage toward West Shore Trail to the same discharge point to the proposed Stonycreek Township gravity interceptor. The proposed

Stonycreek Township gravity interceptor would serve to convey Indian Lake Borough's sewage as well as Stonycreek Township's sewage to a single treatment facility that will be constructed in the Borough of Shanksville.

On November 2, 2004, the Act 537 Plan was submitted to PaDEP. At that time, Alternative 5 was selected as the most cost effective means of addressing the sewage needs of the Borough. This alternative, however, required participation from other adjacent municipalities. A meeting was held between Borough officials and the PaDEP on April 21, 2005. At this meeting, Borough officials indicated that they no longer considered Alternative 5, sewerage the entire Borough as a feasible, cost effective alternative that could be implemented in a timely manner. Alternative 5 was not considered for implementation primarily because of the high projected monthly rates, the lack of financial commitment from Stonycreek Township for their share of an interceptor sewer and a lack of any inter-municipal agreement. Based on this consideration, the Borough is now proposing to address its sewage disposal needs by utilizing an on-lot Sewage Management Program instead of implementing Alternative 5.

Under this program, the Borough will conduct routine monitoring and inspection of individual on-lot systems to ensure that the operation and maintenance of these systems is handled properly, as well as maintain a database to enable monitoring of these facilities throughout the Borough. It would also require the Borough to appoint a Borough official to oversee and administer the management program.

The utilization of various alternate techniques for individual on-lot disposal systems shall be included in the Sewage Management Program. These techniques may be utilized for existing on-lot disposal systems found to be malfunctioning and for new home construction, in which soil conditions prohibit the use of a conventional on-lot disposal system. In the event that alternate techniques to on-lot disposal systems are not feasible, the property owner may select the installation and use of a retaining tank or a small flow treatment facility. Controls over operation and maintenance requirements for retaining tanks and small flow treatment facilities

would be addressed in a Sewage Management Program. These proposed alternate techniques would be considered until a public sewage system was installed.

There are a variety of methods and combinations of methods, which may be utilized to fund the construction of sewage facilities. Funding methods available to Indian Lake Borough include PENNVEST funding, bond issues and long term bank financing. It shall be determined at a later date which method will be most viable for the Borough and its residents.

The following is a proposed schedule of implementation in order to put this Act 537 Plan into effect. At this time, it is somewhat premature to actually establish calendar dates due to factors that could affect the implementation schedule.

PROPOSED SCHEDULE OF IMPLEMENTATION

<u>MILESTONE</u>	<u>TIME</u>
1. Submit Act 537 Plan to PaDEP for review	Nov. 2005
2. Obtain approval from the PaDEP for the Act 537 Plan	Dec. 2005
3. Implement Sewage Management Program	Jan. 2006

Included as part of this Act 537 Planning Process, an additional study was conducted to evaluate the trophic state of Indian Lake and Lake Stonycreek. This study was prepared by Enviro Science Incorporated and was presented under separate cover. In summary, both lakes were determined to be slightly enriched with nutrients and, of course, attempts should be made to reduce future nutrient inputs to both lakes.

5.0 IDENTIFICATION OF ALTERNATIVES

5.1 Conventional Collection, Conveyance and Treatment Alternatives

At the present time, there are no regional sewage treatment facilities in Indian Lake Borough. Regionalization of sewage treatment would provide a workable alternative for the handling of sewage from Indian Lake Borough. However, overall drainage patterns throughout the Borough flow toward Indian Lake and the presence of very steep slopes, the installation of an entire gravity conveyance system would not be feasible. Substantial pumping would be required to convey sewage throughout the Borough to a single location for treatment.

Due to the topography, either a conventional conveyance system with a series of pump stations or a total pressurized collection system would be required for a regional collection and conveyance system within Indian Lake Borough.

The Lakewood Sewage Treatment Plant currently serves the Northwinds Lodge Complex. Sewage treatment by this plant could be extended to additional areas in need of improved sewage facilities, however expansion of the Lakewood Sewage Treatment Plant may be required.

Repair and upgrading of the Lakewood Sewage Treatment Plant could provide continued sewage treatment for the Northwinds Lodge Complex and additional residences that may potentially be served by this plant. Reduction of hydraulic and organic loadings, in addition to improved operation and maintenance, could also provide continued use of the Lakewood Sewage Treatment Plant.

Due to on-lot surveys conducted in Indian Lake Borough, there is a need to address sewage disposal in the Borough, and construction of new community sewage facilities including sewer systems and/or treatment facilities could provide a viable alternative.

The only existing sewage collection and conveyance system located in Indian Lake Borough includes the system from the Northwinds Lodge complex and the Lakewood Sewage Treatment Plant. Repair and replacement of this existing system is not required. Use of innovative or alternative methods of collection and conveyance to serve needs areas is not required.

5.2 Individual Sewage Disposal Systems

The majority of Indian Lake Borough is supported through the use of individual on-lot disposal systems. However, with more stringent PaDEP requirements for individual on-lot disposal systems have been required, and in some cases, areas of the Borough are simply not approved for any type of on-lot sewage disposal system.

The primary reason for the limited use of on-lot disposal systems is the inability of the soils to permit adequate percolation. The soils suitable for conventional on-lot disposal systems are generally located on hilltops or in areas not conducive to development. Many lots in Indian Lake Borough have failed percolation tests due to low soil permeability and steep slopes that exist in the Borough. See Figure 5 for an illustration of the On-lot Facility Survey Map. Although some of the lots have failed percolation tests and a few others have malfunctioning on-lot systems, some lots within Indian Lake Borough may have individual on-lot disposal systems that could be operating in marginally acceptable soils.

The additional steep slopes and small lots will not permit the utilization of individual spray irrigation systems to resolve the existing malfunctions.

The establishment of a Sewage Management Program has been determined by the Borough Council to be the alternative that best meets the wastewater needs of Indian Lake Borough. The Sewage Management Program shall include operation and maintenance requirements for acceptable individual on-lot disposal systems. Replacement and/or upgrades to individual on-lot disposal systems that are not functioning properly shall also be included in a Sewage

Management Program. Various alternate techniques to conventional on-lot disposal systems are preferred, in certain soil conditions, for new home construction, and the utilization of various alternate techniques shall be included in the Sewage Management Program.

Replacement and/or upgrading of an on-lot disposal system may utilize various alternate techniques. These techniques may include elevated sand mounds, oversized absorption areas and shallow placement absorption areas. Many of these techniques are preferred, in certain soil conditions, for new home construction. The use of water conservation devices may also improve existing malfunctioning systems.

5.3 Small Flow Sewage Treatment Facilities

The Lakewood Sewage Treatment Plant is currently providing sewage treatment for the Northwinds Lodge Complex in the Borough. There is also an RFS III system currently providing sewage treatment for a single residence in Indian Lake Borough. The effluent from each of these facilities is conveyed directly to Indian Lake. Treatment and discharge requirements for these small flow sewage treatment facilities is under the jurisdiction of the PaDEP.

The use of additional small flow sewage treatment facilities to serve individual homes or cluster of homes in the Borough is a feasible option due to the topography and soil conditions of Indian Lake Borough. However, due to unfavorable soil conditions, effluent discharges from small flow treatment facilities may require surface discharge in some cases. With Indian Lake in close proximity to many lots within the Borough, it may be economically viable in many cases to convey effluent from small flow sewage treatment facilities to Indian Lake, which may assimilate the effluent. This alternative may be considered in circumstances where poor percolation and steep slopes prohibit on-lot disposal systems, and the opportunity to connect to public sewers is not available.

The Sewage Management Program shall include operation and maintenance requirements for small flow sewage treatment facilities. Replacement and/or upgrades to small flow sewage treatment facilities and the utilization of various alternate techniques, including RFS-III technology will be considered by the Borough.

5.4 Community Land Disposal Alternatives

There are no designated areas within Indian Lake Borough that are used for community land disposal of sewage discharges. Individual land disposal of sewage discharges could be accomplished through use of an elevated sand mound, oversized absorption area or a shallow placement absorption area.

Due to the unavailability of suitable areas for land disposal in Indian Lake Borough, community land disposal alternatives do not appear to be feasible. However, individual land disposal alternatives could be accomplished through the use of elevated sand mounds, oversized absorption areas or a shallow placement absorption area.

The Borough will further permit, as part of this study, the use of technology referred to as alternate or experimental system designs. The systems are based on technologies that may not yet be recognized by PaDEP; however, any system that is proposed to be used in the Borough must be submitted, reviewed and approved by PaDEP.

The establishment of a Sewage Management Program was determined to be the alternative that would best serve the Borough at this time. Controls over operation and maintenance requirements for individual land disposal alternatives will be considered by the Borough.

5.5 Retaining Tank Alternatives

With a large number of part-time residents in Indian Lake Borough, retaining tanks may provide permanent sewage treatment alternatives to failing on-lot disposal systems. Retaining tanks may also be used on a temporary basis in which the installation of permanent sewage disposal facilities are anticipated. The use of retaining tanks would require continuing pumpouts, and individual property owners may be required to carry out retaining tank pumpouts. Disposal sites for retaining tanks may be limited to a number of sewage treatment facilities located outside of the Borough.

The implementation of a retaining tank ordinance shall be given consideration as part of a Sewage Management Program. Financial guarantees for interim retaining tanks may also be addressed in a Sewage Management Program.

5.6 Sewage Management Programs

A Sewage Management Program is the alternative to be established in Indian Lake Borough to oversee the installation and operation of existing and future individual on-lot disposal systems and small flow treatment facilities. Individual on-lot disposal systems and small flow treatment facilities would be maintained by the individual property owner. Operation and maintenance of these facilities would be undertaken by the individual property owner.

The Sewage Management Program would control permitting, inspections, maintenance, repair and fee collection related to on-lot disposal systems and small flow treatment facilities, as well as a database to enable monitoring of the individual sewage systems throughout the Borough. The establishment of a Sewage Management Program would require the Borough to appoint a Borough official to oversee and administer the program. The official appointed by the Borough shall carry out inspections of existing individual on-lot disposal systems and small flow treatment facilities as often as it is necessary in order to ensure that these systems are



properly operated and maintained. Maintenance required to be undertaken under the Program by individual property owners shall include pumpouts and upgrading of nonconforming systems as often as it is necessary to keep these systems operating properly.

The utilization of various alternate techniques for on-lot disposal systems shall be included in the Sewage Management Program. These techniques may be utilized for existing on-lot disposal systems found to be malfunctioning and for new home construction, in which a soil conditions prohibit the use of a conventional on-lot disposal system. Some of the alternate techniques may include elevated sand mounds, oversized absorption areas and shallow placement absorption areas. The PaDEP publishes an alternate systems guidance for acceptable alternate techniques for sewage disposal that could assist with the utilization of alternate techniques. In the event that alternate techniques to on-lot disposal systems are not feasible, the property owner may select the installation and use of a retaining tank, a small flow treatment facility or another alternative, such as RFS-III technology. Controls over operation and maintenance requirements for retaining tanks, small flow treatment facilities and alternative technologies would be addressed in a Sewage Management Program. Standard PaDEP planning modules would be required for certain alternatives and the Borough would be required to approve ordinance to permit holding tanks as a means of addressing sewage concerns. In approving these facilities a performance surety amount shall be required for operation and maintenance of these types of facilities.

5.7 Non-Structural Comprehensive Planning Alternatives

Non-structural comprehensive planning alternatives to control existing and future sewage disposal do not play a significant role in Indian Lake Borough.

Proposed modification of the comprehensive plan is not an option in the Borough since a comprehensive plan has not been developed. Land use designations and densities are controlled somewhat through the existing zoning ordinance and map. Densities and

development types are directed through enforcement of the zoning ordinance. Drinking water as well as surface water source protection has been studied in the past. The historically dense lot development of the Borough has promoted the development of a public water system.

Development of a comprehensive plan can provide some direction to maintain a sound and consistent future growth pattern. However, due to the fact that the land in the Borough is presently developed to its fullest potential, planning is somewhat after the fact.

The Borough has not adopted its own land development and subdivision regulations, but utilizes the regulations of Somerset County. The consideration of changing regulations to permit large lot on-site sewage disposal is not an option for consideration. The Borough has little land for further subdivision. The majority of the area is subdivided into quarter acre or smaller lots. Whether the lots were made large or not, the poor soil conditions are the primary reason this study was undertaken and the larger lot will still not provide a secondary replacement area for on-lot disposal.

5.8 No Action Alternatives

Due to the quantity of existing on-lot disposal systems that are a concern, a no action alternative may adversely affect the Borough. A no action alternative could harm water quality, public health, growth potential, economic vitality, recreational amenities and sources of drinking water. As a result of these concerns, a no action alternative does not appear to be a practical alternative.



6.0 EVALUATION OF ALTERNATIVES

6.1 Technically Feasible Alternatives

The technically feasible sewage disposal alternatives to be evaluated in this section of the study are identified as follows:

Alternative 1 - Regional Gravity Sewer System with a single treatment plant located on West Shore Trail and discharge to Rhoads Creek.

Alternative 2 - Regional Pressure Sewer System with a single treatment plant located on West Shore Trail and discharge to Rhoads Creek.

Alternative 3 - Regional Pressure Sewer System with a single treatment plant located on Peninsula Drive near Point Circle and discharge to Indian Lake.

Alternative 4 - Initial sewer service will be provided to the peninsula area through a privately constructed and operated pressure sewer system and sewage treatment plant to be constructed. Future expansion for other areas of the Borough will be handled by expanding the Lakewood Sewage Treatment Plant.

Alternative 5 - Regional Pressure Sewer System with one pump station which would discharge to the Stonycreek Township gravity sewer system with treatment occurring at the proposed Shanksville sewage treatment facility.

Alternative - Sewage Management Program - Establishment and implementation of a Sewage Management Program to oversee the installation and operation of existing and future individual on-lot disposal systems and small flow treatment facilities.

The identified sewage disposal alternatives are described in detail as follows:

Alternative 1

Alternative 1 consists of a gravity sewer system, eleven (11) pump stations and a 200,000 gpd treatment plant. The system would serve 539 EDUs initially and may serve an additional 125 EDUs as a result of anticipated development within the Borough. The proposed alternative

8.0 SELECTED ALTERNATIVE

8.1 Selected Alternative

Section 5 of this Plan identified six (6) alternatives for consideration. Although Alternative 5 was originally selected, after consideration, establishment of a Sewage Management Program was determined to be the alternative to best meet the immediate wastewater treatment needs of Indian Lake Borough. Implementation of a Sewage Management Program will ensure that sewage facilities within the Borough are properly operated and maintained.

Alternative 5 was developed to address the long-term sewage needs of the Borough. Based upon public comment the general consensus of the residents was the following:

1. Provide sewage service to all existing dwelling units.
2. Have no sewage treatment plant discharge to Indian Lake.
3. Provide sewage service to vacant lots in the Borough.

Alternative 5 would be designed as a pressure sewer system with grinder pumps at each dwelling unit. The North Shore Area of the lake would be provided a pressure sewer system with discharge across Causeway Drive into the proposed Stonycreek Township gravity interceptor sewer. The Peninsula Drive area and the South Shore area would be provided a pressure sewer system with discharge to a proposed pump station. This pump station would replace the Lakewood Sewage Treatment Plant and be the new collection point for the Northwinds Lodge and Golf Course and the existing townhouses. The force main from the proposed pump station would follow the South Shore Trail to the proposed Stonycreek Township gravity interceptor across Causeway Drive. From the point of connection the Stonycreek Township gravity interceptor follows along Causeway Drive and then Springdale Road to Shanksville Borough. The Shanksville Sewage Treatment Facility would be located to the west of the Borough.



9.0 ENVIRONMENTAL IMPACT ASSESSMENT

9.1 Environmental Impact Factors

The items listed below will be addressed in a short narrative regarding compliance with Environmental Impact Assessment Issues:

Activity

- Best practicable waste treatment technology
- Innovative alternative technology
- Non-excessive infiltration/inflow
- Recreation and open space usage
- Environmental impact assessment
- Historical and archaeological sites
- Wetlands
- Endangered and protected species
- Air quality
- Flood plains
- Fish and wildlife
- Agricultural lands
- Wild and scenic rivers
- Coastal zone management
- Socio-economic impacts
- Water supplies
- Other environmentally sensitive areas
- Cost effectiveness
- Capital Finance Plan
- Value Engineering
- Civil rights
- User charge system

9.0 ENVIRONMENTAL IMPACT ASSESSMENT

9.1 Environmental Impact Factors

The items listed below will be addressed in a short narrative regarding compliance with Environmental Impact Assessment Issues:

Activity

- Best practicable waste treatment technology
- Innovative alternative technology
- Non-excessive infiltration/inflow
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- Agricultural lands
- Wild and scenic rivers
- Coastal zone management
- Socio-economic impacts
- Water supplies
- Other environmentally sensitive areas
- Cost effectiveness
- Capital Finance Plan
- Value Engineering
- Civil rights
- User charge system



- Minority Business Enterprise/Women's Business Enterprise/Disadvantaged Business Enterprise
- Davis-Bacon Wage Rate
- Initiation of Operation/Performance Certification

9.2 Narrative

The selected alternative consists of implementation of a Sewage Management Program. This alternative provides the most practical method of sewage disposal for Indian Lake Borough at this time.

Innovative technologies have been considered to the extent that they are available and practical for providing on-lot sewage management.

Recreational and open space areas that exist in the existing service area will not be significantly affected by the selected alternative.

The selected alternative would not be expected to significantly environmentally impact the following:

- Historical and archaeological sites
- Wetlands
- Endangered and protected species
- Air quality
- Flood plains
- Fish and wildlife
- Agricultural lands
- Wild and scenic rivers
- Coastal zone management



- Socio-economic impacts
- Water supplies
- Other environmentally sensitive areas

The selected alternative is a cost effective alternative in addition to the least costly of all evaluated alternatives. The preliminary cost estimates of the capital alternatives are located in the Appendix. The Sewage Management Program will be developed utilizing two (2) fees. The Administration Fee to be established will be twenty-five (\$25.00) dollars per year. This fee will be assessed to each property owner to cover the administration, scheduling and cost for the Borough officials to observe the on-lot system after a system pump out is completed. The scheduling will occur between the Borough the septic pumper and the property owner.

On-lot systems will be pumped once every five years. The cost will be paid directly to the septic pumper by the homeowner. The established cost for this service is estimated to be between \$150 to \$175 per pump out.

The Sewage Management Program requires no special capital costs associated with this alternative. The primary cost will be associated with the operation of the program.

Indian Lake Borough and their consultants and contractors will not infringe on the civil rights of those residents participating in the proposed Sewage Management Program.

Indian Lake Borough presently bills for sewage within the existing service area, as well as operate the existing Lakewood Sewage Treatment Plant. The Borough is capable of implementing the selected alternative.